

Please cancel claims 32 and 36 without prejudice or disclaimer.

8. (Amended) A method of treating a human subject having airway disease comprising:

(a) administering via airway treatment to at least one cell type selected from the group consisting of airway epithelial cells, airway smooth muscle cells and a combination thereof, a first composition comprising a vector comprising a DNA sequence encoding a β_2 AR operably linked to a promoter that is functional in at least one of said cells of said subject, under conditions whereby the DNA sequence encoding said β_2 AR is expressed in at least one of said cells; and

(b) administering via airway treatment a second composition comprising at least one β_2 -adrenergic agonist into said cells of said subject.

14. (Amended) The method of claim 13, wherein said mammalian cell specific promoter is an epithelial cell specific promoter or a smooth muscle cell specific promoter.

30. (Amended) A pharmaceutical composition comprising a vector comprising a DNA sequence encoding a β_2 AR operably linked to a promoter that is functional in at least one cell of the airways of a human subject, wherein said cell is selected from the group consisting of an airway epithelial cells, airway smooth muscle cells and a combination thereof; and a pharmaceutically acceptable carrier, wherein said pharmaceutical composition is an aerosol which is suitable for airway delivery to said subject.

33. (Amended) A kit for the treatment of a human subject having airway disease comprising:

(a) a first pharmaceutical composition comprising a vector comprising a DNA sequence encoding a β_2 AR operably linked to a promoter that is functional in at least one cell of the airways of a human subject, wherein said cell is selected from the group consisting of an airway epithelial cells, airway smooth muscle cells and a combination thereof; and a pharmaceutically acceptable carrier, wherein said first pharmaceutical composition is an aerosol which is suitable for airway delivery to said subject; and

(b) a second pharmaceutical composition comprising at least one β_2 -adrenergic agonist and a pharmaceutically acceptable carrier, wherein said second pharmaceutical composition is an aerosol which is suitable for airway delivery to said subject.

35. (Amended) The kit of claim 33, , wherein said promoter is an inducible promoter, said kit further comprises:

(c) a third pharmaceutical composition comprising a hormone or pharmacological agent that induces said promoter to express said β_2 AR in at least one of said cells, wherein said third pharmaceutical composition is an aerosol which is suitable for airway delivery to said subject.

38. (Amended) A kit for the treatment of a human subject having airway disease comprising:

(a) a first pharmaceutical composition comprising a vector comprising a DNA sequence encoding a β_2 AR operably linked to a promoter that is functional in at least one cell of the airways of a human subject, wherein said cell is selected from the group consisting of an airway epithelial cells, airway smooth muscle cells and a combination thereof; and a pharmaceutically acceptable carrier; and

(b) a second pharmaceutical composition comprising a hormone or pharmacological agent that induces said promoter to express said β_2 AR in at least one of said cells, wherein said first and second pharmaceutical compositions are aerosols which are suitable for airway delivery to said subject.

44. (Amended) The method of claim 3, wherein said promoter is an epithelial cell specific promoter or a smooth muscle cell specific promoter.

45. (Amended) The method of claim 5, wherein said promoter is an epithelial cell specific promoter or a smooth muscle cell specific promoter.

46 (Amended) The pharmaceutical composition of claim 30, wherein said promoter is an endothelial cell specific promoter or a smooth muscle cell specific promoter.

47. (Amended) The kit of claim 35, wherein said promoter is an epithelial cell specific promoter or a smooth muscle cell specific promoter.

48. (Amended) The kit of claim 38, wherein said promoter is an epithelial cell specific promoter or a smooth muscle cell specific promoter.

49. (Amended) A kit for the treatment of a human subject having airway disease comprising:

a first pharmaceutical composition comprising a vector comprising a DNA sequence encoding a β_2 AR operably linked to a promoter that is functional in at least one cell of the airways of a human subject, wherein said cell is selected from the group consisting of an airway epithelial cells, airway smooth muscle cells and a combination thereof; and a pharmaceutically acceptable carrier;

a second pharmaceutical composition comprising at least one β_2 -adrenergic agonist and a pharmaceutically acceptable carrier; and

a third pharmaceutical composition comprising a hormone or pharmacological agent that induces said promoter to express said β_2 AR in at least one of said cells, wherein said first, second and third pharmaceutical compositions are aerosols which are suitable for airway delivery to said subject.

50. (Amended) The kit of claim 49, wherein said promoter is an epithelial cell specific promoter or a smooth muscle cell specific promoter.

53. (Amended) The pharmaceutical composition of claim 31, wherein said modified β_2 AR possesses at least one property selected from the group consisting of increased responsiveness to β_2 AR agonists, increased affinity to β_2 -adrenergic agonists, and capability to increase the potency of β_2 AR agonists to stimulate downstream signal transduction pathways, as compared to the native β_2 AR.

54. (Amended) The pharmaceutical composition of claim 53, wherein said modified β_2 AR is modified from the native β_2 AR by the deletion of amino acids, substitution of amino acids, replacement of amino acids or a combination thereof.